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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/796,584
Filing Date: March 08, 2004
Appellant(s): BAKER, CLARK R.

W. Allen Powell
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 4, 2008 appealing from the Office action mailed August 22, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. After a careful review of applicant's arguments, see pages 5-8 of the Appeal brief, filed 02/04/08, with respect to claims 1-22 under 35 U.S.C. 112, second paragraph have been fully considered and are persuasive. Therefore this rejection has been withdrawn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Masimo, Technical Buletin 1, "Discrete Saturation Transform" (2006), pages 4-5

5,662,106	Swedlow et al.	09-1997
2003/0036689	Diab et al.	02-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al. (US 2003/0036689) in view of Swedlow et al. (US 5,662,106).

With respect to claims 1-4, 6-16, 18-22, the Diab et al. patent teaches a system

for detecting the presence of mixed venous and arterial blood pulsation in tissue, (abstract, paragraph 0019), obtaining a measure of a phase difference between said first and second electromagnetic radiation signals (paragraphs 0389-0391, fig. 25B, elements 694, 692, 690), comparing said measure with a threshold value to form a comparison (paragraph 0387, fig. 25B, elements 660, 662, 696); and detecting the presence or absence of venous pulsation using said comparison (paragraphs 0019, 0368). (NOTE: it is well known in the art that the primary cause of noise in transmissive pulse oximetry measurements is motion artifact caused by the movement of venous blood in the finger. See Masimo technical bulletin, pages 4 and 5, Masimo SET Pulse Oximetry).

Diab et al. do not disclose indicating the presence of venous pulsation to a caregiver if venous pulsation is present. However, the Swedlow et al. patent teaches an indication of the presence of venous pulsation to a caregiver if venous pulsation is present (see abstract, fig. 1, element 30, and figure 4, col. 5, line 64 - col. 6, line 34).

It would have been obvious for a person of ordinary skill in the art, to modify the system disclosed by Diab et al., with the above discussed enhancements because such modification would provide a more accurate blood oxygen and pulse readings.

With respect to claims 2 and 14, Diab et al. discloses filtering the electromagnetic radiation signals to pass signals having frequencies at or near the pulse rate or harmonics (pars. 0329, 0385).

With respect to claims 3-4 and 15-16, Diab et al. illustrates in figures 26-30 the measurement of both signals red and infrared, in which each of the signals is relatively undisturdbed by motion artifact over a time period (pars. 0411-0414).

With respect to claims 6 and 18, Diab et al. discloses a method for analyzing and correlating the measured signals (pars. 0014).

With respect to claims 7 and 19, Diab et al. discloses a frequency domain analysis and subtraction of the signals (pars. 0032, 0082, 0090, 0402).

With respect to claims 8 and 20, the subtracting step by taking the complex conjugate of the signals and dividing it by the product of the magnitudes of the signals, it would have been an obvious design choice for one of ordinary skill in the art.

With respect to claims 9-11 and 21, Diab et al. discloses obtaining the measurement of the signals at or near a fundamental (first harmonic) or a harmonic of a pulse rate (pars. 0329, 0385, and 0400).

Allowable Subject Matter

Claims 5 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(10) Response to Argument

Applicant's arguments have been fully considered, but are deemed not persuasive.

In relation to appellant's argument that the Diab et al. reference does not disclose detecting the presence of venous pulsation. The examiner of record notes that the Diab et al. reference in Figure 25B and in paragraphs 0389-0396 of the specifications discloses calculating the phase differences between the red and infrared signals and compares it with a threshold value to detect the presence of venous blood pulsation.

In relation to appellant's argument that the examiner failed to produce documentary evidence to demonstrate that "the primary cause of noise in transmissive pulse oximetry measurements is motion artifact caused by the movement of venous blood in the finger". The examiner is providing a technical document (Masimo – "Discrete Saturation Transform") to disclose that it is commonly understood in pulse oximetry that the detected physiologic signals in response to both red and infrared light consist of desired signal portions as well as undesired signal or noise portions. The desired signal portions are proportional to one another through the arterial optical density ratio. The resultant is a reference signal that contains only noise portions. Considering the finger for example, the venous blood in the vascular bed will be easily deformed during motion. In addition, the venous blood is a strong absorber of light. Hence, it can represent a significant contributor to the total optical density during motion episodes. During routine patient motions (shievering, waving, tapping, etc.), the resulting noise can be quite substantial and can easily overwhelm a conventional ratio based oximetry system. Having identified the venous blood as a significant contributor to noise during motion.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/John F Ramirez/

Examiner, Art Unit 3737

April 9, 2008

Conferees:

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